

AMENDMENTS TO THE CLAIMS

Claim 1 (original): A system for testing a potential drug candidate for toxicity, said system comprising:

a liver-slice culture apparatus, the culture apparatus comprising:

a chamber having a medium inlet and a gas valve;

a plurality of animal liver slices positioned securely within said chamber so as to maximize the surface area of the liver slices exposed to a medium; and

means for selectively supplying and removing a medium in the chamber so that the medium in the chamber comes into contact with the liver slices, and is removed from contact with the liver slices; and

a reservoir for containing the medium as it enters and exits the chamber, said animal liver slices being cultured in an environment of an oxygenated gas under the supply of the medium at regular intervals so that said slices are exposed alternatively to the medium and to the gas;

wherein when the liver slices are exposed to the potential drug candidate the toxicity of the potential drug candidate can be determined by observing the effectiveness of the liver slices to metabolize a compound in the presence of the potential drug candidate.

Claim 2 (original): The system of claim 1, wherein a mesh at least partially surrounds said animal liver slices so as to form a space and to retain said slices within said space; said mesh being approximately vertical in the chamber.

Claim 3 (original): The system of claim 2, wherein two meshes at least partially surround said liver slices.

Claim 4 (original): The system of claim 1, wherein the liver slices have a thickness in the range of about 10 μ m to about 2,000 μ m.

Claim 5 (original): The system of claim 1, wherein the liver slices have a thickness in the range of about 100 μ m to about 500 μ m.

Claim 6 (original): The system of claim 1, further comprising a means for introducing a gas to the gas valve.

Claim 7 (original): The system of claim 6, wherein the gas is a mixture of oxygen and carbon dioxide.

Claim 8 (original): The system of claim 7, wherein the gas-to-plasma exposure time ratio to the animal liver slices is about 1:2 to about 1:4.

Claim 9 (original): The system of claim 7, wherein the gas-to-plasma exposure time ratio to the animal liver slices is about 1:3.

Claim 10 (original): The system of claim 1, further comprising an immunological filter inserted in the gas valve.

Claim 11 (original): The system of claim 1, wherein the chamber is sealable.

Claim 12 (original): The system of claim 11, wherein the chamber is thermoregulated.

Claim 13 (original): The system of claim 1, wherein the compound is selected from the group consisting of ammonia and lidocaine.

Claim 14 (withdrawn): A method for evaluating the toxicity of a drug, said method comprising:

supplying a culture medium;

contacting the culture medium with animal liver slices, the animal liver slices being positioned securely in a chamber so as to maximize the surface area of liver slices exposed to the culture medium, wherein the chamber has a plasma inlet and a gas valve, means for selectively supplying and removing plasma in the chamber so that the plasma in the chamber comes into contact with the liver slices, and is alternately removed from contact with the liver slices, means for supplying a gas to the chamber, a reservoir for containing plasma as it enters and exits the chamber, the method further comprising:

contacting the liver slices with a gas mixture of oxygen and carbon dioxide;

exposing the liver slices alternatively to plasma and the gas mixture of oxygen and carbon dioxide gas; and

exposing the liver slices to the drug to be tested;

wherein when the liver slices are exposed to the drug the toxicity of the drug can be determined by observing the effectiveness of the liver slices to metabolize a compound in the presence of the drug.

Claim 15 (withdrawn): The method of claim 14, wherein a mesh at least partially surrounds said animal liver slices so as to form a space and to retain said slices within said space, said mesh being positioned approximately vertical in the chamber.

Claim 16 (withdrawn): The method of claim 15, wherein the compound is selected from the group consisting of ammonia and lidocaine.

Claim 17 (withdrawn): A method of treating a hepatic failure patient, the method comprising:
separating the plasma from the whole blood of the mammal;
contacting the plasma with animal liver slices contained in a space between two meshes;
contacting the liver slices with a gas mixture of oxygen and carbon dioxide;
exposing the liver slices alternatively to the plasma and the gas mixture of oxygen and carbon dioxide gas; and
returning to detoxified plasma to the mammal and the mammal's blood is thereby detoxified.

Claim 18 (withdrawn): The method of claim 17, wherein the gas-to-plasma exposure time ratio to the animal liver slices is about 1:3.